Appendix C

Statistical Methodologies

The statistical methodology for determining whether a parity standard has been met is set out in Appendix J of the Guidelines. However, where statistically appropriate, VNJ shall replace the use of the permutation method for determining whether parity has been met for measures with a small sample size with the use of a Hyper-geometric Formula.

Standard Hyper-geometric Formula (use for small sample size counted variables)

This substitute for the permutation tests was proposed by AT&T in a statistical subgroup in New York as an alternative method of obtaining accurate results that requires far fewer computational resources than permutation testing. A Hyper-geometric formula function is built into MS Excel or can be found in SAS software and has been found to provide accurate results. Probability of a given number of failures (x), for a given sample size (n), population failures (M), and population size (N),

$$P(x) = \{({}_{M}C_{x})\ ({}_{N-M}C_{n-x})\} / ({}_{N}C_{n})$$

N = total sample size (ILEC + CLEC)
M = total number of failures (ILEC + CLEC)
n = CLEC sample size
x = number of CLEC failures

Where the function $({}_{M}C_{x})$ is the binomial coefficient function: M!/((M-x)!x!)